Chevrolet-Pontiac-Canada Group
Fairfax Plant
General Motors Corporation
3201 Fairfax Trafficway
P.O. Box 15278
Kansas City, Kansas 66115-1307

May 18, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. J. P. Goetz, P.E., Chief
Hazardous Waste Section
Division of Environment
Bureau of Waste Management
Kansas Department of Health and Environment
Forbes Field
Topeka, Kansas 66620-0001

SUBJECT: GM - CPC Fairfax I Plant
Closure Certification of Hazardous Waste Storage Facility
EPA ID KSD007145899

Dear Mr. Goetz:

The GM - CPC Fairfax Plant completed closure activities for the above-referenced facility on March 27, 1988. Closure operations were conducted in accordance with the approved Closure Plan for the facility dated April 27, 1987.

Enclosed is a letter prepared by an independent, registered engineer certifying that the facility has been closed in accordance with the approved Closure Plan. Also enclosed is documentation, in the form of a report entitled, "Drum Storage Facility Closure Certification Report," supporting the certification of closure.

Please contact Mr. R. K. Baird at (913) 573-7303 if you have any questions or require additional information.

Very truly yours,

J. E. Daniels
Director of Plant Engineering

JED:cld
rkb5-18:f6

cc: A. M. Beirne - Letter only
J. J. Martin - With attachment
P. E. Gerwert - With attachment
M. J. Cooke - With attachment
J. Williamson - HDR - Letter only
M. Kay - EPA Region VII - With attachment

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HDR Engineering, Inc. 8404 Indian Hills Drive
Omaha, Nebraska
68114-4049

Telephone:
402 399-1000

May 18, 1988

Fairfax Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
3201 Fairfax Trafficway
Kansas City, Kansas 66115-1307

Attention: Mr. Robert K. Baird
Senior Environmental Engineer

Regarding: Fairfax I Drum Storage Facility
Closure Certification Report

Dear Mr. Baird:

HDR Engineering, Inc. is pleased to present, herewith, the final report, Drum Storage Facility Closure Certification Report, for the closed hazardous waste storage area at the closed Fairfax I Plant. The report is presented in accordance with the scope of services set forth in CPC Purchase Order FXM05662.

The report documents closure activities observed by HDR in March 1988 and summarizes the results of laboratory analyses for soil, concrete, and surface samples collected in January and March 1988. A letter certifying that the facility was closed in accordance with the state-approved closure plan is included in the report, immediately following the Executive Summary.

HDR appreciates the opportunity to be of service to you on this project.

Very truly yours,

HDR ENGINEERING, INC.

Jeffrey A. Williamson, P.E.
Project Manager

JAW/pjb

Enclosures

DRUM STORAGE FACILITY

CLOSURE CERTIFICATION REPORT

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

May 1988

HDR Engineering, Inc.
Omaha, Nebraska

ACKNOWLEDGMENTS

HDR Engineering extends its appreciation to GM - CPC Group for their interest and support in the closure certification of the drum storage facility. Special thanks are extended to Mr. Robert Baird and Mr. Pete Zanoni who assisted us greatly during the project. Their insights into the drum storage facility operations aided in the completion of the activities and this report.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

Automobile assembly operations at the General Motors Corporation Chevrolet-Pontiac-Canada Group (CPC) Fairfax I Plant were discontinued in May 1987. The drum storage facility for storage of hazardous waste (EPA ID No. KSD 007145899) was subsequently closed in March 1988. HDR Engineering was retained by CPC to assist in closing the facility.

Services provided by HDR:

- Observation and documentation of closure activities.
- Sample collection and analysis to determine whether contaminants had migrated from or had the potential to migrate from the closed facility.
- Certify closure of the facility in accordance with the state-approved closure plan.
- Provide documentation in support of closure certification.

This report summarizes closure operations and presents data generated from sampling and analytical activities. Based on recorded observations and a review of the analytical data, the facility is certified as having been closed in accordance with the state-approved closure plan.

Closure operations included removal of all hazardous materials from the facility with subsequent cleaning of the concrete pad surface. Plant personnel were responsible for removal of materials from the facility. An

independent contractor was hired to clean the surface of the concrete storage pad.

Subsoil, concrete core, and surface wipe samples were collected to determine whether any contaminants had migrated from or remained on the surface of the concrete pad.

Samples were analyzed for total metals, EP toxicity metals, and volatile organic compounds. Key information from the sampling activities:

- Soil Samples:
  - Total metal concentrations for all samples were within the range of values for total metals in soils in the region, based on comparison with background soil levels at the site and published total metal concentrations for soils in the region.
  - EP toxicity metal levels for all samples were below established regulatory concentrations.
  - Volatile organic compound levels were below detection limits for all samples.
- Concrete core samples:
  - Total metal concentrations for all samples were within the range of values for total metals in the background concrete core sample taken at site.
  - EP toxicity metal levels for all samples were below established regulatory concentrations.

- Surface Wipe Samples:

  - Residual levels of total lead and chromium were detected in several samples. Based on discussions with the Kansas Department of Health and Environment (KDHE), however, the remaining levels of contaminants on the surface of the concrete pad are not significant and are not of regulatory concern.

Based on the information presented in this report, the Drum Storage Facility is certified as having been closed in accordance with the state-approved closure plan. A closure certification letter is included in the report, immediately following this Executive Summary.

CLOSURE CERTIFICATION

HDR Engineering, Inc. 8404 Indian Hills Drive
Omaha, Nebraska
68114-4049

Telephone:
402 399-1000

May 13, 1988

Fairfax Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115-1307

Attn: Mr. Robert K. Baird
Senior Environmental Engineer

Re: Drum Storage Facility Closure Certification

Dear Mr. Baird:

I D R

I have reviewed the GM-CPC-Fairfax Plant Hazardous Waste Closure Plan, as revised April 27, 1987. The document represents the closure plan for the Drum Storage Facility in Kansas City, Kansas listed under EPA identification number KSD 007145899. I, along with HDR staff under my supervision, have monitored closure activities at the site conducted by the Fairfax Plant and their contractor, Midwest Mechanical Contractors, Inc.

HDR collected samples from the soils underlying the concrete pad; core samples from the concrete pad itself; and wipe samples from the surface of the concrete pad. Based on comparison with available regulatory criteria and discussions with Kansas Department of Health and Environment (KDHE) personnel, laboratory analyses of these samples indicate no significant levels of contaminants remaining in the underlying soils or within or upon the concrete pad.

I have reviewed the closure activities completed to date and as reported to me and have determined in my best judgment that the Drum Storage Facility has been closed in accordance with the April 27, 1987 Closure Plan. A final report entitled "Drum Storage Facility Closure Certification Report" has been prepared in support of this certification and to provide documentation of closure activities.

Very truly yours,

HDR ENGINEERING, INC.

Jeffrey A. Williamson

Jeffrey A. Williamson, P.E.
Project Manager

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General Motors Corporation
Kansas City, Kansas

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Closure Certification Report

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Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

SECTION 1.0 - INTRODUCTION

SECTION 1.0

INTRODUCTION

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

1.1 Purpose and Scope

The purpose of this report is to summarize the activities undertaken by General Motors Corporation, Chevrolet-Pontiac-Canada Group (CPC), and its contractors in closing the area used for drummed storage of hazardous wastes at the closed Fairfax I Assembly Plant in Kansas City, Kansas. The report covers the cleaning of the Drum Storage Facility and subsequent sampling of the concrete pad. Where residual levels of contamination have been detected, the nature and extent of contamination of the pad is discussed in the report and evaluations are made regarding the regulatory significance of the remaining contamination.

Section 2 briefly discusses the history of the drum storage facility and the Fairfax I Automobile Assembly Plant. This section provides a description of the drum storage facility. Section 3 discusses the closure activities undertaken by CPC. A summary of the efforts from drum and pallet removal to cleaning of the drains is provided. Section 4 discusses the sampling effort for quality assurance of the cleaning activities. The section discusses the types of samples and sampling procedures.

Section 5 discusses the analytical results of the samples submitted. Where residual levels of contaminants remain, the nature and extent is

assessed based on the analytical results of the samples taken. Section 6 presents a summary of the regulatory statutes applicable to the site.

1.2 Closure Certification Objectives

The purpose of this effort was to clean the former drum storage facility for permanent closure. To complete the closure, samples of the concrete pad were obtained and analyzed. Samples were taken to evaluate the cleaning of the facility in light of applicable specifications. Three types of samples were obtained: wipe samples from areas of visible paint related staining or discoloration which remained on the pad following cleaning; concrete cores taken in areas where staining was visually noted; and soil samples from below the pad. Samples were taken in January to assess whether any contamination had penetrated the concrete pad and entered the soil matrix. Samples were analyzed for volatile organics according to EPA SW846 methods 5030/8240 while inorganics and metals samples were analyzed according to the appropriate method as presented in Appendix B.

1.3 Project Participants

General Motors Corporation, Chevrolet-Pontiac-Canada Group (CPC) is the present owner and operator of the facility. The cleaning contractor was Midwest Mechanical Contractors, Inc. of Kansas City, Missouri. HDR Engineering, Inc. provided observation services, documentation and coordination of cleaning activities, sample collection, and closure certification. CPC contracted with Langston Laboratories, Inc. to

provide analysis of subsoil, concrete core and wipe samples. HDR contracted with Terracon Consultants to provide drilling services.

1.4 Related Documents

- Sampling Plan, January 1988
- Health and Safety Plan, January 1988
- Closure Plan, April 1987

SECTION 2.0 - BACKGROUND

SECTION 2.0

BACKGROUND

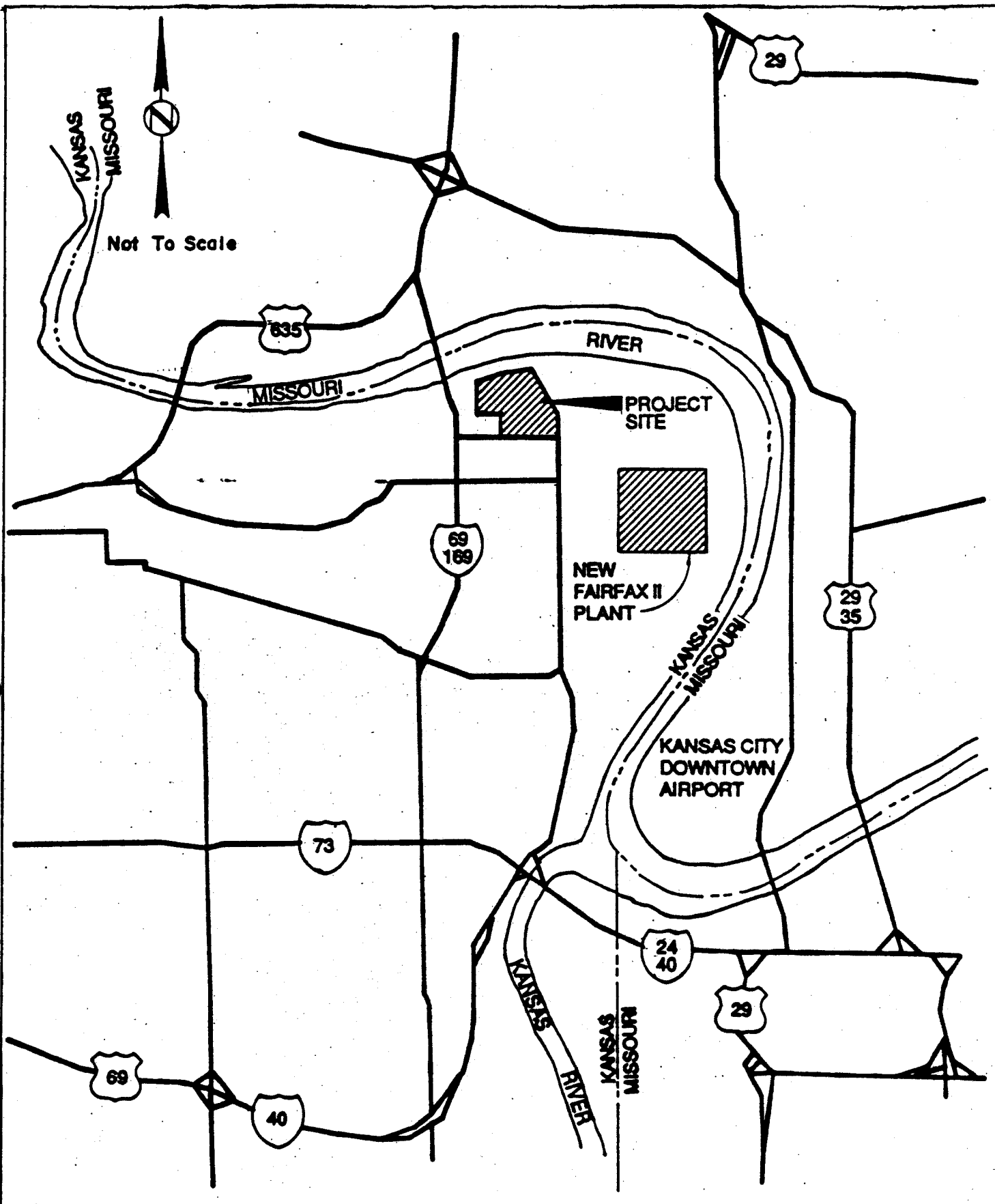
Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

2.1 Site Description

The General Motors Corporation Chevrolet-Pontiac-Canada Group (CPC) Fairfax I Assembly Plant is located at 100 Kindelberger Road, Kansas City, Kansas. The site is bounded on the north by the Missouri River and associated flood control levee, on the east by the former Fairfax Municipal Airport (current site of the new GM-CPC Fairfax Plant), on the south by Kindelberger Road and on the west by Union Pacific Railroad and City properties up to Seventh Street Trafficway approximately one-quarter mile to the west. The site lies entirely within the city limits of Kansas City, Kansas in the northeast corner of Wyandotte County (see Figures 2-1 and 2-2). The site occupies 132 acres at the above location. The former drum storage facility is located north of the main assembly plant building (see Figure 2-3).

The drum storage facility consists of approximately 6500 square feet of storage area including a small shed. On the perimeter of the storage pad there is a 1 foot high, 1 foot wide concrete containment berm which is capped with steel. Surrounding the facility is a 12 foot high fence that is on the outside of the berm on all sides except the section at



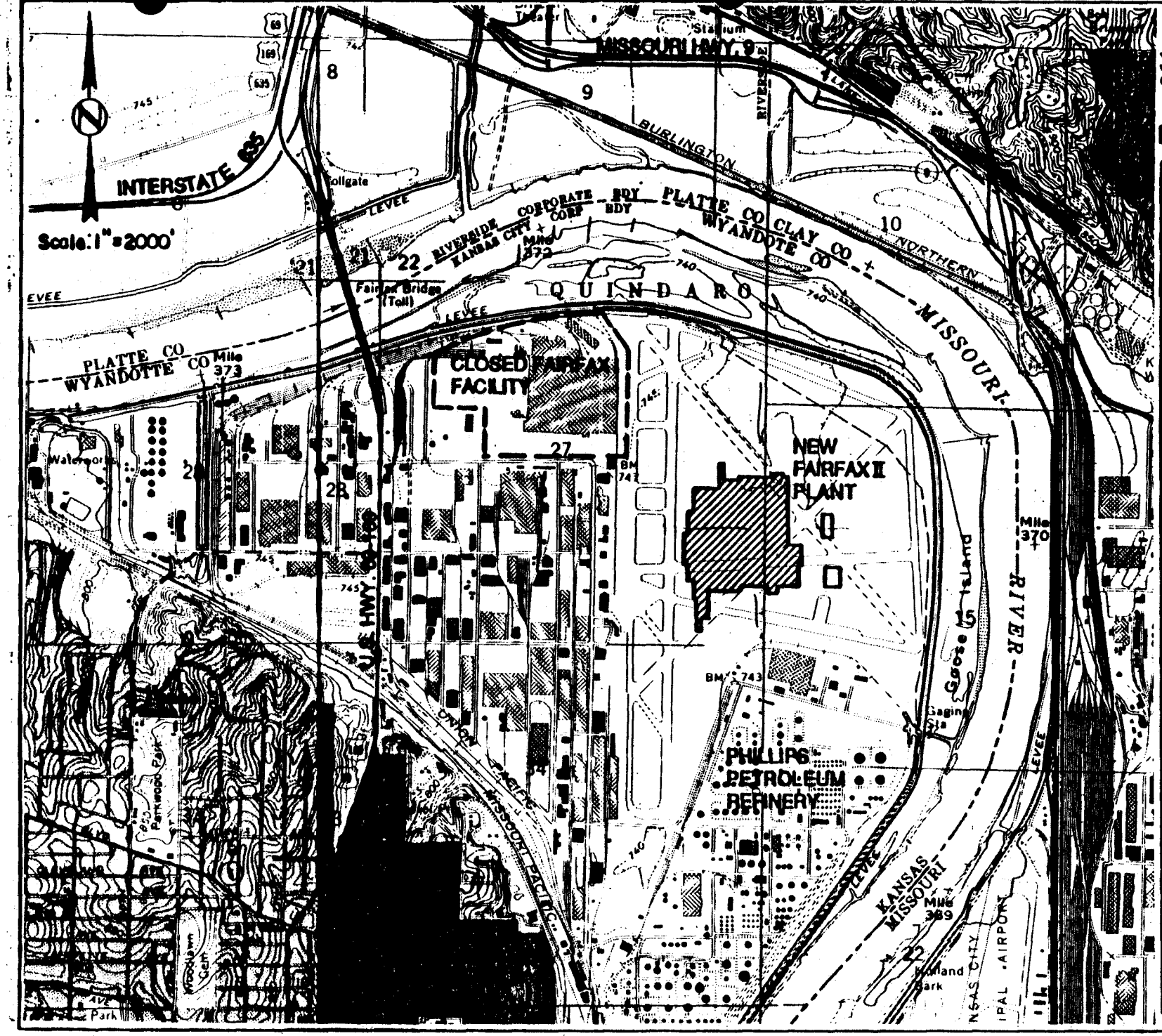
HDR

Chevron-Pennzoil-Conoco Group
Fairfax Plant
General Motors Corporation

DRUM STORAGE FACILITY CLOSURE CERTIFICATION REPORT

LOCATION MAP

Figure 2-1



HDR

Chevrolet-Pontiac-Canada Group
Fairfax Plant
General Motors Corporation

DRUM STORAGE FACILITY CLOSURE CERTIFICATION REPORT

VICINITY MAP

Figure 2-2

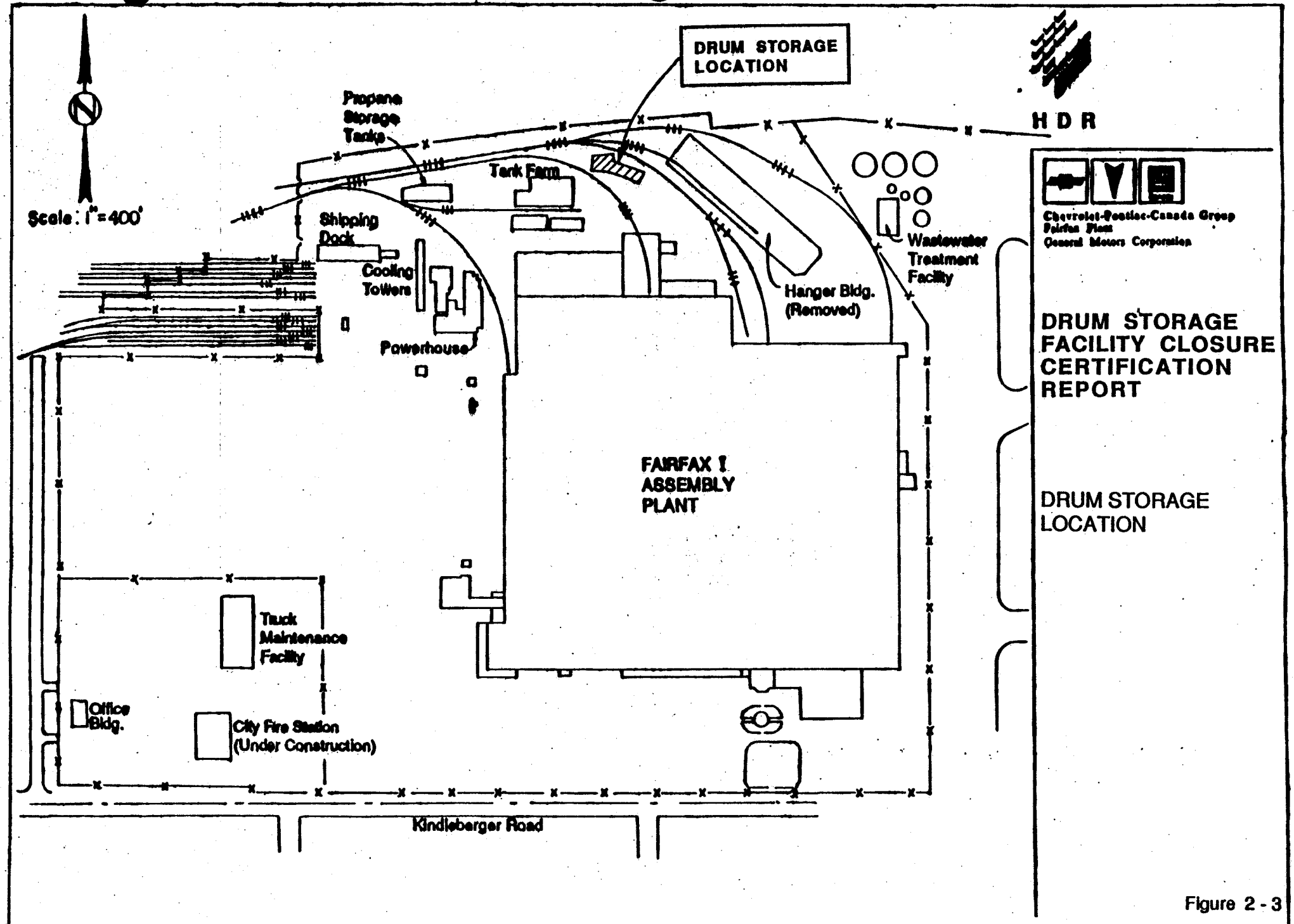
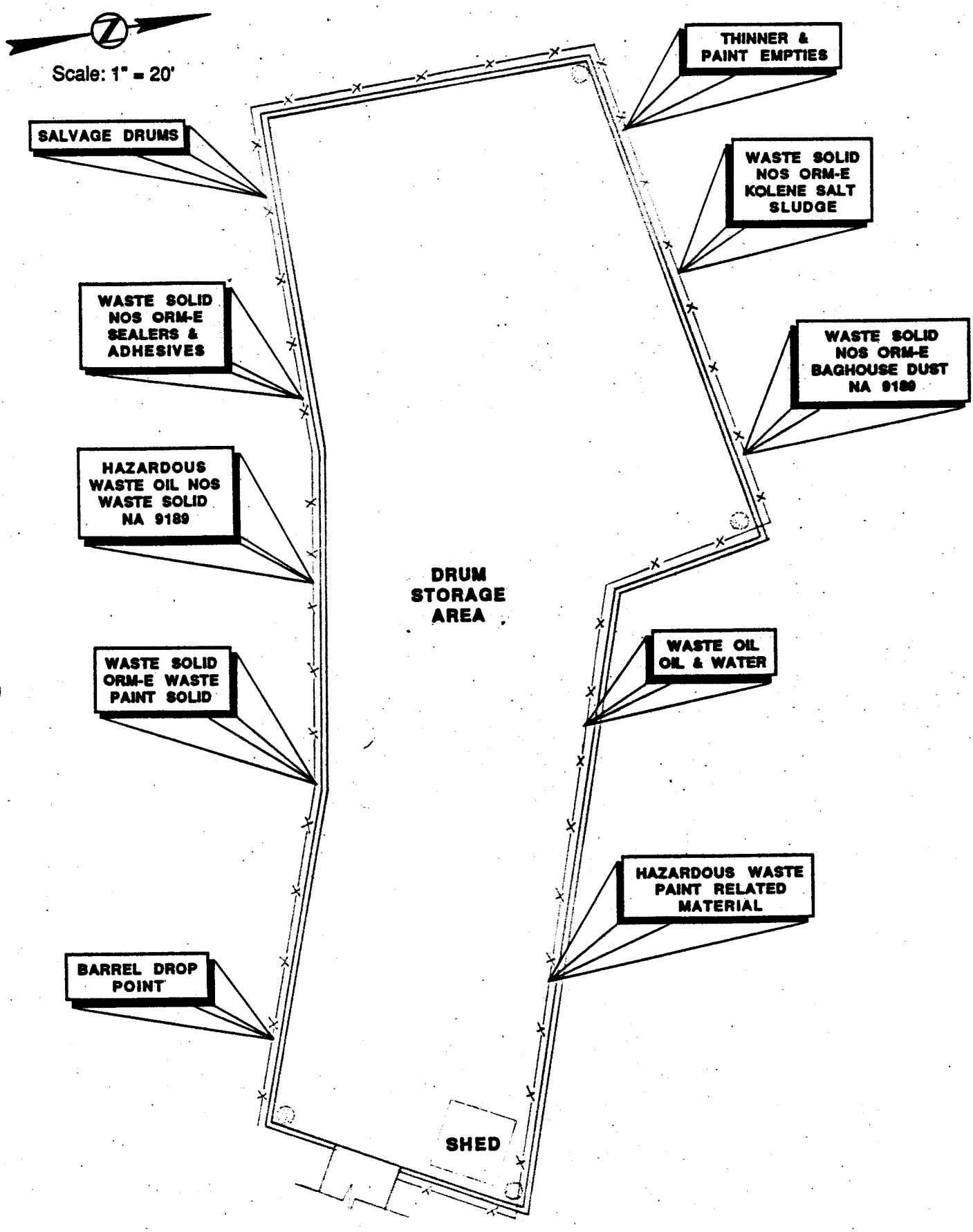

DRUM STORAGE LOCATION
Propane Storage Tanks
Tank Farm
Shipping Dock
Cooling Towers
Powerhouse
Hanger Bldg. (Removed)
Wastewater Treatment Facility
FAIRFAX I ASSEMBLY PLANT
Truck Maintenance Facility
Office Bldg.
City Fire Station (Under Construction)
Kindleberger Road
Scale: 1"=400'
H D R
Chevrolet-Pontiac-Canada Group
Fairfax Plant
General Motors Corporation
DRUM STORAGE FACILITY CLOSURE CERTIFICATION REPORT
DRUM STORAGE LOCATION

Figure 2 - 3

the northeast corner. At the time of closure a portion of the fence on the southeast side of the facility had been removed.

2.2 Facility History

The facility was established in 1981 for the storage of hazardous wastes to comply with newly enacted U.S. EPA RCRA regulations. Generally, the wastes stored consisted of paint sludges, paint thinners and other solvents, adhesives and sealers, body shop dust, phosphate sludges and other toxic materials which were generated from automobile assembly operations. Sections of the facility were clearly marked as to what type of wastes were to be stored in specific sections of the facility, as shown on Figure 2-4. The plant's assembly operations were discontinued in May, 1987. The drum storage facility has since been closed and cleaned according to the state-approved closure plan.



Chevrolet-Pontiac-Canada Group
Fairfax Plant
General Motors Corporation

HDR

DRUM STORAGE FACILITY CLOSURE CERTIFICATION REPORT

HAZARDOUS WASTE STORAGE AREAS

Figure 2 - 4

SECTION 3.0 - CLOSURE ACTIVITIES

SECTION 3.0

CLOSURE ACTIVITIES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

3.1 General

This section summarizes the activities undertaken by CPC and its contractors during closure of the drum storage facility at the Fairfax I Plant. Discussion regarding drum and pallet removal and drum storage pad cleaning is included. The activities were completed in accordance with the state-approved closure plan. Closure of the drum storage facility included the following activities:

- Drum Removal
- Pallet Removal
- Surface Sweeping
- Surface Cleaning with Detergent

3.2 Drum Removal

Prior to site entry by HDR on March 25, 1988, all drums and pallets were removed from the drum storage facility. Removal of the drums and pallets was conducted by CPC.

3.3 Cleaning Operations

The purpose of the cleaning effort was to remove residues from the pad. Cleaning was completed by Midwest Mechanical Contractors, Inc., (Midwest). Midwest began the cleaning operations by removing loose materials from the pad surface. This was completed by sweeping the surface of the pad with brooms. Areas where residue was difficult to remove were scraped with ice scrapers for concrete, then swept. Loose material was placed in drums for subsequent disposal by CPC.

The next step in the operation was to detergent wash the pad with an emulsifier (see Appendix E). The pad was washed with the detergent solution using a high-pressure, hot-water sprayer. Areas of staining that were difficult to remove were scrubbed using a push broom. Areas where paint residue adhered to the concrete pad were again scraped and swept. Residue, dirt and other materials were collected and placed in drums for subsequent disposal by CPC. Wash water was directed to the drain at the southeast corner of the pad which drains to the Industrial Wastewater Pretreatment Facility.

The next step in the cleaning operation was a hot-water rinse using the high-pressure, hot-water sprayer. The rinse water was directed to the drain at the southeast corner of the facility which drains to the Industrial Wastewater Pretreatment Facility.

The final step in the cleaning operation was cleaning of the drains. Sludges and residue were removed from the drains located at the northwest, northeast and southeast corners of the facility. The

material removed from the drains was placed in drums for subsequent disposal by CPC.

Equipment used was either decontaminated prior to leaving the site or left at the site for disposal by CPC. Materials left at the site included brooms, 'squee-gees', scoop shovels and hand tools used to clean drains. Tools decontaminated and removed from the site included the sprayer, metal tools, and plastic tools which could be properly decontaminated. Decontamination water drained to the Industrial Wastewater Pretreatment Facility. Daily field activities are summarized on the HDR Daily Field Reports included in Appendix A.

3.4 Closure Certification

The Fairfax I Plant Drum Storage Facility was certified as being closed in accordance with the state-approved closure plan, dated April 27, 1987. A copy of the closure certification letter, dated May 13, 1988, is included in this report, immediately following the Executive Summary. Closure certification was provided by Mr. Jeffery Williamson, HDR project manager, a registered professional engineer in Kansas, Professional Engineer License No. 10112.

SECTION 4.0 - SITE INVESTIGATION

SECTION 4.0

SITE INVESTIGATION

Drum Storage Facility
Closure Certification Report

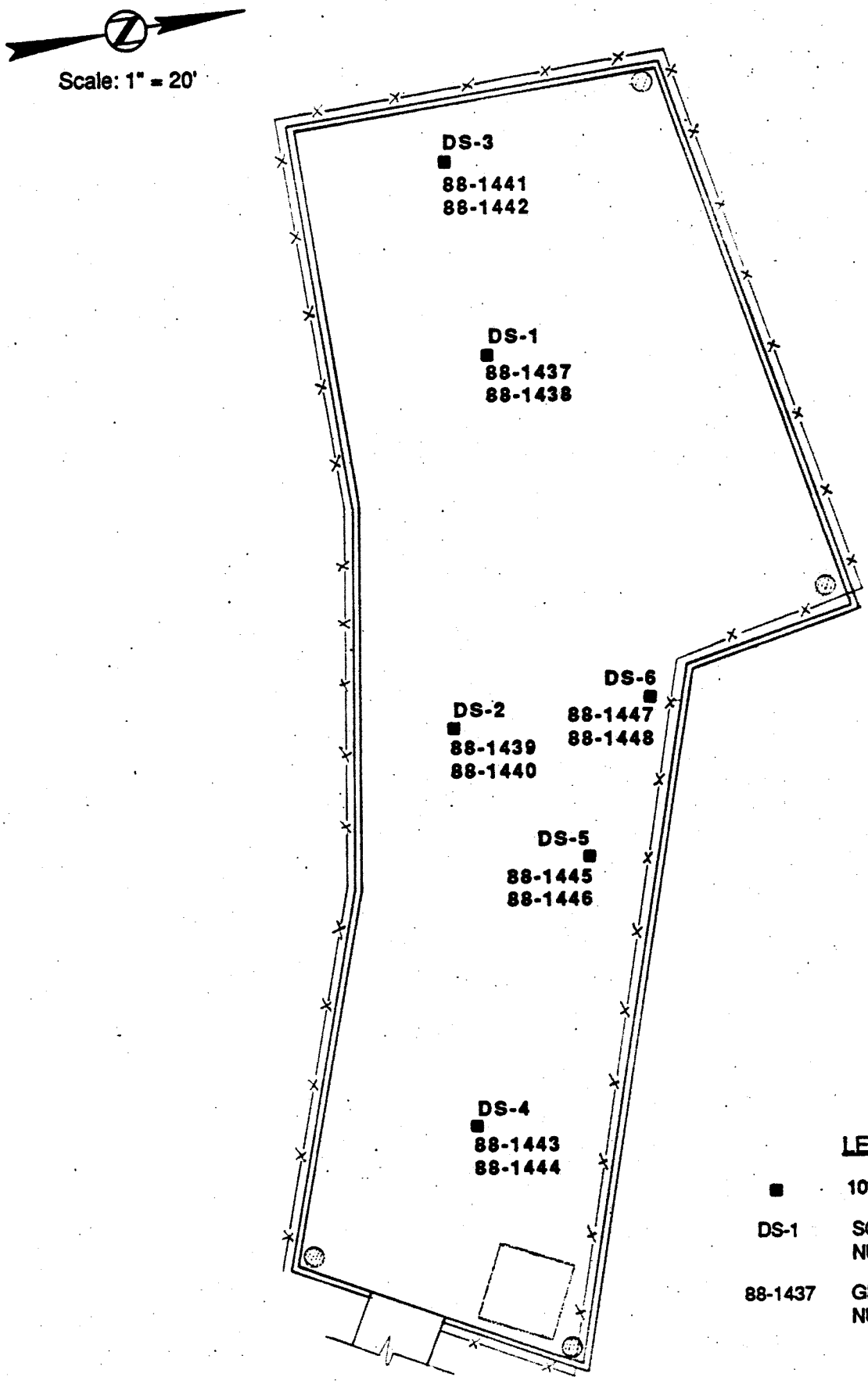
Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

4.1 General

Quality assurance sampling for closure certification was conducted in two phases. In January 1988, the initial phase was completed by an HDR field team in association with Terracon Consultants, EC. That sampling was completed by drilling six 10-foot soil borings for the purpose of determining whether contaminants had migrated into the subsoil. In March 1988, following decontamination of the drum storage concrete pad, a second sampling program was completed to determine if any surface contamination existed on the pad. This program involved concrete coring at eight locations followed by wipe sampling of seven additional surface areas. Results from the two sampling events are presented in Section 5.0

4.2 Sample Locations

Specific sampling locations were selected based on field observations at the time of sample collection. The January subsoil borings were chosen based on the apparent condition of the concrete pad (i.e. cracked areas). Locations are indicated on Figure 4-1. The March surface wipe and concrete core samples were collected from areas of suspected contamination, based on visual inspection (i.e. staining).



Chevrolet-Pontiac-Canada Group
Fairfax Plant
General Motors Corporation

DRUM STORAGE FACILITY CLOSURE CERTIFICATION REPORT

Figure 4-1

TEN FOOT SOIL BORING LOCATIONS

HDR

Sampling locations were measured to within ±2 FT from the nearest corner inside the concrete bermed area, and are indicated on Figure 4-2.

4.3 Sampling Methods

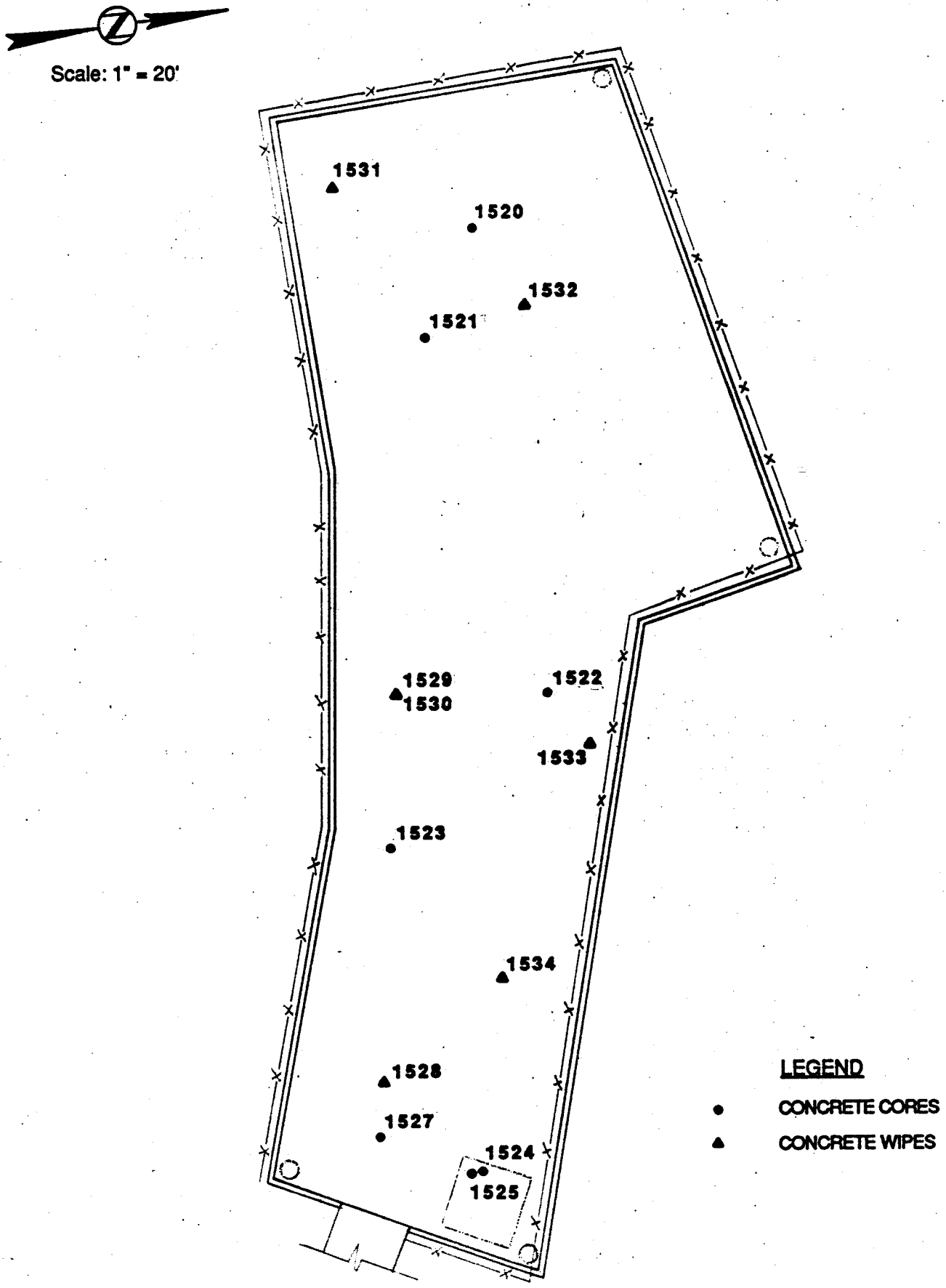
The various matrices sampled at the drum storage facility required that several different sampling techniques be used in this investigation. The appropriate sampling technique was selected following a visual assessment of each sample location. Descriptions of the various techniques are presented below.

4.3.1 Wipe Samples

Effective sampling of surface areas is best accomplished by wipe sampling. This procedure involves sampling a known area by wiping that area, horizontally and vertically, with an absorbent material wetted with an appropriate agent. The March assessment utilized wipe samples for heavy metals. A standard area of 100 cm^2 was selected for all wipe samples. The absorbent material was a coarse textured filter paper (Whatman No. 40 or equivalent) with a diameter of at least 11 cm. HPLC Grade Water was used as the wetting agent.

Wipe samples were collected in the following manner:

- A 100 cm^2 area was measured on the surface to be sampled. Care was taken to avoid contaminating or disturbing the actual sample area.



Chevrolet-Pontiac-Canada Group
Fairfax Plant
General Motors Corporation

H D R

DRUM STORAGE FACILITY CLOSURE CERTIFICATION REPORT

Figure 4-2

CONCRETE CORE / WIPE SAMPLE LOCATIONS

- A sheet of filter paper was wetted with the appropriate HPLC Grade Water. It should be noted that the HPLC Grade Water is a deviation from nitric acid, which was specified as the wetting agent in the sampling plan.
- The sample area was wiped using ten horizontal and ten vertical strokes within the sample area. Care was taken to wipe the entire sample area.
- The filter paper was folded in half with the sample side folded in and then folded in half a second time.
- The filter paper was placed in a clean 8-oz. wide mouthed jar with a teflon-lined lid.

Persons collecting wipe samples wore clean, disposable surgeon's gloves. The gloves were changed between each sample location to reduce possible cross-contamination of samples. At the location where a duplicate sample was taken, a second 100 cm^2 area was measured over an area adjacent to, but unaffected by, the previous sampling.

4.3.2 Concrete Core Samples

The concrete pad on which drummed materials were stored may have been contaminated from operations involving the handling of the hazardous materials. These areas were sampled during March in the following manner:

- A concrete coring machine fitted with a 2-IN I.D. bit was positioned at the sample location.
- The concrete was cored and the core extracted.
- The bore hole was scanned with the OVA.

- The top 2 IN of the core was removed and placed in a clean 16-oz. glass jar with a teflon-lined lid.

Persons handling and packing core samples wore clean disposable surgeon's gloves. The gloves were changed between each sample location. Duplicate cores were collected from a location adjacent to but not impacted by the previous sample collection activities.

4.3.3 Soil Samples

The January soil sample locations were chosen in the field based on the condition of the concrete pad. Locations chosen were areas where cracks in the concrete may have allowed seepage of contaminants into the subsoil. All soil samples were analyzed for volatile organic compounds and heavy metals.

Drilling was completed using 3-1/4 IN inside diameter and 6-1/2 IN nominal outside diameter hollow stem augers. Samples were taken by driving a 2-IN nominal diameter split spoon sampler into the appropriate sampling interval. Two soil samples were collected from each 10-FT boring. Samples were collected at the 3.5FT-5FT and 8.5FT-10FT intervals. After completion of sampling at each boring, the borings were backfilled to ground surface with drill cuttings. The samples were collected according to the following procedures:

- Sample was split length-wise with a stainless steel spatula.

- Sample monitored immediately with OVA and readings recorded per depth.
- Volatile soil samples were taken from the area of the soil core showing the highest OVA readings.
- One 4-oz. VOA container was filled.
- Container was packed to minimize void space.
- When no organic vapor readings were recorded, sample was taken from the bottom 1 FT of each soil core.
- Photo identification (I.D.) board was filled out.
- Photograph was taken of I.D. board and sample.
- When heavy metal samples were required, the remainder of soil core was placed in a stainless steel mixing bowl.
- Soil was mixed to obtain a homogeneous sample.
- One 8-oz. glass container was filled.
- Jarred sample was photographed with I.D. board and remaining sample composited in stainless steel bowl.

Persons handling and packing the soil samples during collection wore clean disposable surgeon's gloves. The gloves were disposed of between each sample location.

4.4 Decontamination Procedures

Decontamination is intended to minimize the potential for cross-contamination between samples. The sampling activities supporting this closure certification required the use of disposable and reusable equipment. Disposable or single-use equipment was used to the greatest extent possible. Items such as stainless steel bowls, spoons, and

concrete core bits are reusable and required decontamination.

Decontamination procedures:

- Soapy water wash using alconox in potable water.
- Potable water rinse.
- Distilled water rinse.
- Air dry.

Investigation-derived contaminated materials such as disposable gloves, disposable sampling equipment, tyvek coveralls, decontamination solutions, etc. required disposal. Pad and equipment decontamination solutions were discharged to the CPC waste treatment plant as approved by CPC environmental staff. Remaining materials were placed in 55-gallon drums and left on the site for disposal by CPC.

4.5 Field Quality Control Procedures

Duplicate samples and blank samples were included in this sampling program as part of the quality control/quality assurance program. Two duplicate samples were collected, one for concrete cores and one for wipe samples. Langston Laboratories, Inc. performed the analyses and was not notified regarding which samples were duplicate samples. Due to inherent discrepancies associated with concrete core and wipe sample protocols, duplicate samples collected by these techniques were prepared as a replicate sample. This entailed collection of sample material from two immediately adjacent areas.

Other field quality control samples used included field blanks and decontamination blanks. Two field blanks were collected for this investigation, one for concrete core samples collected from a visually

clean area and one blank filter paper saturated with HPLC Grade Water for wipe samples. One decontamination blank was prepared with HPLC Grade Water by pouring water over the decontaminated concrete core bit. The field and decontamination blanks were labeled, prepared, and packaged according to the sample preparation procedures.

4.6 Sample Preparation

The Site Coordinator was responsible for sample handling. The Site Coordinator checked that the appropriate containers were used, the sample containers were decontaminated prior to shipment, the samples were preserved in the appropriate manner, each sample was properly identified, and the proper packaging and shipping methods were used.

4.6.1 Sample Containers

All sample containers were provided by Langston Laboratories, Inc. Containers were appropriately sized and of the proper material to meet the analytical requirements. The containers were pre-cleaned by the laboratory, in accordance with the analytical methods being used, prior to being shipped to the site.

4.6.2 Sample Preservation

Field sampling personnel preserved each sample collected for laboratory analysis according to the specified preservation requirements. The laboratory provided the required preservatives as appropriate to this investigation.

4.6.3 Sample Container Decontamination

After collection and prior to leaving the site, the exterior of all sample containers were decontaminated. The decontamination steps included at a minimum:

- Tap water rinse (sample container)
- Alconox wash
- Tap water rinse

4.6.4 Sample Identification

Each sample was assigned a unique sample identification number to allow for proper data management. These sample numbers were included on the sample label in the daily field log book to identify notes pertaining to the sample and on the chain-of-custody forms.

Samples were labeled immediately after collection. Information included on the sample label:

- HDR sample identification number
- Sample type
- Date and time of collection
- Name of the sampler
- Sample collection location
- Requested analysis

The labels were filled out in indelible ink, firmly affixed to the sample container and protected by covering with clear tape.

For simplicity and ease of tracking, the sample numbers were assigned in sequential order. If, for any reason, a sample number was not used, an explanation of the reason was included in the log book(s), and noted as UNUSED.

4.6.5 Sample Packaging

Labels on sample containers were secured by wrapping with clear tape to prevent them from coming off during transportation. Each sample container was placed inside the cooler and cushioning material was added for stability during transportation. Ice packs and/or ice substitutes were used to maintain a sample temperature of 4°C.

4.6.6 Sample Transportation

Chain-of-custody sheets were prepared to document control and transfer of samples from the field team to the analytical laboratory (see Section 4.8). The top two copies of the chain-of-custody record were sealed in a polyethylene ziploc-type bag and taped to the inner lid of the cooler. The third (bottom) copy was retained by the HDR Site Coordinator.

4.6.7 Chain-of-Custody Procedure

Written records of the sample handling were kept each time the sample changes hands. Each person receiving custody of the sample was required to document the sample transfer on the HDR chain-of-custody records. The HDR chain-of-custody records have three carbon-type copies. The Site Coordinator completed the

records and sent the top two copies, the original (white) and verification of sample delivery (yellow copy), along with the lab samples. The third copy (pink) was retained by the Site Coordinator. Copies of the chain-of-custody records are included in Appendix D.

4.7 Documentation

The Site Coordinator was responsible for the log book, sample tags, chain-of-custody records, correspondence, and photos. Following completion of field operations, documentation was relinquished by the Site Coordinator to the HDR project manager for maintenance in the project records.

4.7.1 Daily Field Log

Daily field log entries were made in a bound book using indelible ink. Each page in the log book was numbered, dated, and initialed. Entries included the following:

- Date and time of entry
- Purpose of sampling
- Name and address of field contact (federal, state, local)
- Sample number
- Depth of sample and location
- Date and time of sample collection
- Sample identification or explanatory notes
- References such as maps or photographs of sampling site
- Field observations
- Field measurements

- Location, date, time, and roll and photo numbers of photographs taken.

4.7.2 Photographic Records

Photographs were used to document work progress, sample collection, unusual sample appearances or locations, and site peculiarities. Photographs other than those used during sample collection are also included in the daily log book with the following information:

- Date and time
- Photographs
- Name and identification of site
- General direction faced and description of subject (if applicable)
- Location of site
- Sequential number of the photograph and the roll number

4.7.3 Data Corrections

As previously stated, all data recorded in daily log books, sample identification labels, chain-of-custody records, and other forms were written in indelible ink. These documents will be retained by the Project Manager. They will not be destroyed or thrown away, even if they are illegible, tattered, or contain inaccuracies that require a replacement document.

If an error was made on a document, corrections were made by crossing a line through the error in such a manner that the original entry remained legible, and entered the corrected

information. Corrections were initialed and dated if different from the date of the original entry.

SECTION 5.0 - SITE INVESTIGATION RESULTS

SECTION 5.0

SITE INVESTIGATION RESULTS

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

5.1 General

Sampling for chemical analysis was conducted in the drum storage area to determine whether specific contaminants remained following closure. Chemical analyses of samples from the drum storage facility were completed during January 1988 and April 1988. The initial effort during January 1988 included analyses of soil boring samples for Extraction Procedure (EP) toxicity metals, total concentration of the EP toxicity metals and volatile organics. A subsequent sampling and chemical analysis effort was completed during March and April 1988, which included analysis of concrete cores for metals and EP toxicity metals and surface wipe samples for metals.

5.2 Soil Analyses Results

A total of 12 soil samples were collected from 6 boring locations on the concrete storage pad. Laboratory results for total metals analyses for these samples are summarized in Table 5-1. Laboratory reports are included in Appendix C.

Total metal concentrations for soil samples collected from the drum storage area were compared to total metal concentrations from a

TABLE 5-1

SOIL BORING TOTAL METALS ANALYSES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

SAMPLE NO.	GM ID NO.	DEPTH	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
DS - 1 - 1	1437	5	3.21	89	1.1	6.8	9.2	<0.1	<0.2	<0.2
DS - 1 - 2	1438	10	2.66	120	1.4	8.3	29	<0.1	<0.2	0.2
DS - 2 - 1	1439	5	2.3	103	0.2	2.3	10.0	<0.1	<0.2	<0.2
DS - 2 - 2	1440	10	2.85	96	1.2	7.2	8.0	<0.1	<0.2	<0.2
DS - 3 - 1	1441	5	0.37	99	1.2	7.4	48	<0.1	<0.2	<0.2
DS - 3 - 2	1442	10	1.3	99	1.3	8.0	17	<0.1	<0.2	0.4
DS - 4 - 1	1443	5	1.07	83	1.3	6.9	17	<0.1	<0.2	<0.2
DS - 4 - 2	1444	10	1.24	73	0.97	5.8	9.5	<0.1	<0.2	0.3
DS - 5 - 1	1445	5	2.78	110	1.6	7.2	11	<0.1	<0.2	<0.2
DS - 5 - 2	1446	10	2.04	110	1.6	8.6	11	<0.1	<0.2	0.3
DS - 6 - 1	1447	5	2.53	86	1.3	6.7	8.0	<0.1	<0.2	<0.2
DS - 6 - 2	1448	10	1.98	92	1.3	7.1	11	<0.1	<0.2	<0.2
S - 8 - 1045	BKGRND	5	1.4	88	1.0	5.8	7.4	<0.1	0.71	0.2

Results reported in mg/kg.

background soil sample to indicate presence or absence of contamination. The background soil sample was collected from an area near the southwest corner of the assembly building. The background soil total metal concentrations are included in Table 5-1, Sample No. S-8-1045.

Two soil samples, DS-1-2 and DS-3-1 (GM Samples 1438 and 1441, respectively), exhibited total lead concentrations significantly above the background soil sample total lead concentration. Total lead levels for the two samples were, however, within the range of naturally occurring lead levels for soils in the region (USEPA, 1983; USGS, 1984).

Soil samples were also analyzed for Extraction Procedure (EP) toxicity metals and volatile organic compounds. EP toxicity metal results are presented in Table 5-2. With the exception of two samples, EP toxicity levels were below detection limits for all samples analyzed. EP toxicity lead concentrations of 2.8 mg/l and 0.89 mg/l were detected in samples DS-1-2 and DS-5-1, respectively. EP toxicity lead levels for both samples are below the established regulatory level of 5.0 mg/l. No volatile organics were detected (500 mg/kg detection limit) in any of the soil samples. Laboratory reports for the EP toxicity and volatile organic analyses are included in Appendix C.

TABLE 5-2

SOIL BORING EP TOXICITY METALS ANALYSES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

SAMPLE NO.	GM ID NO.	DEPTH	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
DS - 1 - 1	1437	5	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 1 - 2	1438	10	<0.25	<5.0	<0.05	<0.25	2.8	<0.01	<0.05	<0.25
DS - 2 - 1	1439	5	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 2 - 2	1440	10	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 3 - 1	1441	5	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 3 - 2	1442	10	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 4 - 1	1443	5	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 4 - 2	1444	10	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 5 - 1	1445	5	<0.25	<5.0	<0.05	<0.25	0.89	<0.01	<0.05	<0.25
DS - 5 - 2	1446	10	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 6 - 1	1447	5	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DS - 6 - 2	1448	10	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25

Results reported in mg/l.

5.3 Concrete Core and Surface Wipe Analyses

Concrete core and surface wipe samples were also collected and analyzed. Concrete core samples were analyzed for total and EP toxicity metals. Concrete pad surface wipe samples were analyzed for total metals.

Results for concrete core sample analyses for total metals and EP toxicity metals are presented in Tables 5-3 and 5-4, respectively. Laboratory reports are included in Appendix C. Concrete core total metal analyses indicated low, but uniform total metal concentrations. Sample No. DSC-1-1 (GM No. 1520) represents background conditions for the concrete pad. EP toxicity metal analyses for the concrete core samples indicated no metal levels above detection limits.

Surface wipe samples (100 cm^2 area) were submitted for analysis for total metals. Analytical results for eight samples, including one duplicate (DSW-2-2) and one filter paper blank (DB-3) are presented in Table 5-5. Lead and chromium levels for several samples indicate that some residual levels of the metals remain on the surface of the pad. The metals in the wipe samples are suspected to have resulted from metal dust in oil or grease deposits impregnated in the concrete surface. The results are inconsistent, however, with metal levels in concrete core samples. The duplicate samples yielded consistent results and the blank sample showed no contamination from the filter paper or water used as a wetting agent for with the wipe sampling.

TABLE 5-3

CONCRETE CORE TOTAL METALS ANALYSES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

SAMPLE NO.	GM ID NO.	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
DSC - 1 - 1	1520	2.1	32.1	0.48	5.74	<2.5	<1.0	<1.0	<0.2
DSC - 2 - 1	1524	4.1	48.5	0.75	7.7	<2.5	<1.0	<1.0	1.61
DSC - 2 - 2	1525	3.8	41.7	0.65	6.7	<2.5	<0.2	<0.2	1.74
DSC - 3 - 1	1521	3.0	33.6	0.55	6.6	<2.5	<1.0	<1.0	1.30
DSC - 4 - 1	1522	<0.2	34.2	0.58	5.81	<2.5	<1.0	<1.0	1.23
DSC - 5 - 1	1523	3.4	41.2	0.67	7.7	<2.5	<1.0	<1.0	1.54
DSC - 6 - 1	1526	1.0	31.0	0.54	5.9	<2.5	<0.2	<0.2	1.17
DSC - 7 - 1	1527	<0.2	24.3	0.36	5.8	<2.5	<0.2	<0.2	1.56
DB - 2 * *	1536	<0.001	<0.010	0.002	<0.010	<0.010	<0.001	<0.001	<0.001

Results reported in mg/kg.

*Sample DSC-1-1 (GM ID No. 1520) represents concrete core background.
**Sample DB-2 (GM ID No. 1536) is an equipment decontamination rinsate blank with results reported in mg/l.

TABLE 5-4

CONCRETE CORE EP TOXICITY METALS ANALYSES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

SAMPLE NO.	GM ID NO.	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
DSC - 1 - 1	1520	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 2 - 1	1524	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 2 - 2	1525	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 3 - 1	1521	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 4 - 1	1522	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 5 - 1	1523	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 6 - 1	1526	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25
DSC - 7 - 1	1527	<0.25	<5.0	<0.05	<0.25	<0.25	<0.01	<0.05	<0.25

Results reported in mg/l.

*Sample DB-2 (GM ID No. 1536) is an equipment decontamination rinsate blank.

TABLE 5-5

CONCRETE WIPE TOTAL METALS ANALYSES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

SAMPLE NO.	GM ID NO.	ARSENIC	BARIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
DSW - 1 - 1	1528	<0.2	5.5	<0.2	5.6	32.8	<0.2	<0.2	<0.2
DSW - 2 - 1	1529	<0.2	<2.0	<0.2	27	74	<0.2	<0.2	<0.2
DSW - 2 - 2	1530	<0.2	<2.0	<0.2	20	54.6	<0.2	<0.2	<0.2
DSW - 3 - 1	1531	<0.2	<2.0	<0.2	52	123	<0.2	<0.2	<0.2
DSW - 4 - 1	1532	<0.2	<2.0	<0.2	<2.0	61	<0.2	<0.2	0.3
DSW - 5 - 1	1533	<0.2	<2.0	0.84	40	39	<0.2	<0.2	0.3
DSW - 6 - 1	1534	<0.2	5.8	<0.2	11	82	<0.2	<0.2	<0.2
DB - 3 *	1535	<0.2	<2.0	<0.2	<2.0	<2.5	<0.2	<0.2	<0.2

Results reported in mg/100 square centimeters.

*Sample DB-3 (GM ID No. 1535) is a blank sample.

5.4 Data Interpretation

The analytical data were evaluated in an effort to determine whether levels of contaminants are present which are of regulatory concern. Established regulatory levels for each type of sample collected are outlined below:

5.4.1 Total Metals

Conversations with regulatory agencies revealed that no specific regulatory limits have been established for total metal concentrations. A general guideline applied in most cases, however, is to compare total metal concentrations for the area of interest to a "background" reference point to indicate presence or absence of contamination. Metals levels may also be compared to total metal levels for soils in the region, based on information provided in Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States (USGS, 1984). Mean values for the metals of interest (USGS, 1984):

- Arsenic - 5.5 mg/kg
- Barium - 580 mg/kg
- Cadmium - 0.2 mg/kg
- Chromium - 41 mg/kg
- Lead - 17 mg/kg
- Mercury - 0.05 mg/kg
- Selenium - 0.23 mg/kg
- Silver - 0.2 mg/kg

Regulatory levels for total metals in surface wipe samples have not been established.

5.4.2 EP Toxicity Metals

Federal regulatory limits were used to determine whether contamination was present in samples analyzed for EP toxicity metals. Established EP toxicity metal concentrations:

- Arsenic - 5.0 mg/l
- Barium - 100.0 mg/l
- Cadmium - 1.0 mg/l
- Chromium - 5.0 mg/l
- Lead - 5.0 mg/l
- Mercury - 0.2 mg/l
- Selenium - 1.0 mg/l
- Silver - 5.0 mg/l

5.4.3 Volatile Organic Compounds

Laboratory detection levels were used to evaluate volatile organic samples. Levels above those limits are considered evidence of contamination. The rationale for this assumption is that these contaminants are not ubiquitous in the environment at those levels (500 ug/kg).

5.5 Summary

Analyses indicate the presence of heavy metals in soil and concrete core samples at levels that are generally consistent with background levels and with concentrations that naturally occur in soils in the

region (USEPA, 1983, USGS, 1984). Wipe samples indicate residual levels of lead and chromium on the surface of the concrete pad. The residual levels indicated by the wipe samples, however, are not of regulatory concern and are not expected to represent a present or future hazard to human health or the environment.

EP toxicity metal analyses for soil and concrete core samples indicate metal levels below established regulatory concentrations. No volatile organics were detected (500 ug/kg detection limit) in any of the soil samples.

SECTION 6.0 - ENVIRONMENTAL REGULATIONS

SECTION 6.0

ENVIRONMENTAL REGULATIONS

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

6.1 General

Federal, state and local regulations applicable to the Fairfax Drum Storage Facility Closure are summarized in this section. Review of the regulations includes a list of the environmental regulations specific to the closure of a facility that stores containers of hazardous waste.

Congress has enacted a number of laws aimed at protecting human health and the environment, such as the Clean Water Act; the Safe Drinking Water Act, the Resource Conservation and Recovery Act (RCRA); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Superfund; the Superfund Amendments and Reauthorization Act (SARA); and the Occupational Safety and Health Act. The U.S. Environmental Protection Agency (EPA) and the U.S. Occupational Safety and Health Administration (OSHA) are responsible for enforcing these laws, and consequently have developed regulations pursuant to these laws.

Kansas Statutes Annotated (K.S.A.) Public Health Chapter 65, Article 34 outlines the role and authority of the Kansas Department of Health and Environment (KDHE) regarding hazardous waste management. K.S.A. 65-3430 through 3472 authorize and direct the Secretary of the KDHE to

develop a statewide hazardous waste management plan and adopt hazardous waste rules and regulations. K.S.A. 65-171d authorizes KDHE to make rules and regulations necessary to prevent surface and subsurface water pollution and soil pollution. According to these statutes, it is unlawful for any person to store, collect, treat or dispose of hazardous waste contrary to rules and regulations, standards or orders of the Secretary of the KDHE. K.S.A. Article 31, are the actual Standards and Regulations for Hazardous Waste Management in the State of Kansas.

6.2 Federal Regulations

Applicable sections from the Code of Federal Regulations Title 40 (40 CFR), Protection of Environment, are summarized below.

6.2.1 40 CFR Part 264

This part sets forth standards and program elements for owners and operators of hazardous waste treatment, storage and disposal facilities. Contained within Part 264 are fifteen (15) Subparts. Subparts A thru H outline the general hazardous waste treatment, storage and disposal facility requirements, such as : General Facility Standards, Preparedness and Prevention, Contingency Plan and Emergency Procedures, Manifest System, Releases from Waste Management Units, Closure and Post-Closure, and Financial Requirements. Subparts I thru O outline site specific guidance requirements for Container Management Systems, Tank Systems, Surface Impoundments, Waste Piles, Land Treatment, Landfills, and Incinerators.

6.2.2 40 CFR Part 264 Subpart G - Closure and Post Closure

Sections 264.110 thru 264.115 of Subpart G provides closure requirements which apply to all hazardous waste management facilities. The following is a listing of these sections and a brief explanation of each.

264.110 Applicability

Sets forth that Subpart G applies to owners and/or operators of all hazardous waste management facilities.

264.111 Closure Performance Standard

The owner and/or operator must close the facility in a manner which minimizes need for further maintenance. Closure must comply with requirements of Subpart G and Subpart I, Section 254.178.

264.112 Closure Plan; Amendment of Plan

This section outlines owner/operator requirements for a written closure plan. This section also includes guidelines on plan contents, amendment of plans, notification of partial and final closure plan initiation.

264.113 Closure

This section outlines the time allowed for closure and criteria needed for extensions to the closure period.

264.114 Disposal or Decontamination of Equipment, Structures and Soils

The owner/operator must properly dispose of contaminated equipment, structures, and soils in adherence to Federal and State regulations during the partial and final closure period.

264.115 Certification of Closure

Within sixty (60) days of completion of closure the owner/operator must submit to the Regional Administrator by registered mail a certification that the facility has been closed in accordance with specifications of the submitted closure plan. This certification must be signed by the owner/operator and by an independent registered professional engineer.

6.2.3 Subpart I - Use and Management of Containers

264.178 Closure

Section 264.178 outlines specific closure requirements for a drum storage facility. This section states that all hazardous waste and waste residue must be removed from the containment system at closure. Any remaining containers, liners, bases, or contaminated soils must be decontaminated or removed at closure.

6.3 State Regulations

The requirements of Kansas Administrative Regulations (K.A.R.) pertaining to hazardous waste management and storage tanks are summarized below.

6.3.1 K.A.R. Chapter 28, Article 31, Parts 1-13

This article contains hazardous waste management standards and regulations. Provisions from 40 CFR parts 124, 260, 261, 263, 264, 265, 266, and 270 are adopted with references to "the United States" replaced with "the State of Kansas," and "Environmental Protection Agency" replaced with the "Kansas Department of Health and Environment," etc. Standards for generators and transporters of hazardous waste, and standards for hazardous waste storage, treatment, and disposal facilities are included.

6.3.2 K.A.R. Chapter 28, Article 31, Part 8

This article incorporates 40 CFR Parts 264, 265, and 266 as in effect November 1, 1986 governing standards for hazardous waste storage, treatment, and disposal facilities.

6.3.3 K.A.R. Chapter 28, Article 31, Part 8d.

This article contains the requirements for placing restrictive covenants and easements on properties on which hazardous waste treatment, storage or disposal facilities were located. The owner must file and execute these easements and covenants with the county Register of Deeds.

6.4 Local Regulations

No local regulations exist pertaining to closure of a hazardous waste drum storage facility. These closures are referred by local agencies to the Kansas Department of Health and Environment and are regulated by that state agency.

REFERENCES

REFERENCES

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering Inc., March 1988, Drum Storage Facility Closure Certification, Sampling Plan and Site Specific Health and Safety Plan, Private Consulting Report.

US EPA, Hazardous Waste Land Treatment, SW-874, April 1983.

USGS, Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States, USGS Professional Paper 1270, 1984.

APPENDIX A - HDR DAILY FIELD REPORTS

Drum Storage Facility Closure Certification

Daily Summary Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR

HDR Project No. 02173-030-107

Date March 25, 1988

Site Personnel

No.	Company	Craft
3	Midwest Mech. Contractors	Foreman Laborers
1	GM	contractor
1	Burns/Mac	"
2	HDR	observation/sample
2	KDHE	observer

Total On-Site Personnel 9

Weather Conditions

Temperature:

Max. 60's Min. 40's

Phenomena:

Clear X Other windy

Precipitation:

none

Summary of Activities

* Midwest Mechanical Contractors - hot water cleaning of Haz. Waste Drum Storage area completed ≈ 1830 light was problem
(1) Entire area broom swept, dirt barreled
(2) Application of Spontaneous Emulsifier cleaning solution: Formulated by: Clean Tech Systems, 305 Cherokee, Leavenworth KS.
(3) Scrub down wetted areas with long bristle broom
(4) Rinse area with Landa Hot water pressure sprayer, 2000 psi nozzle pressure
(5) Squeegee water to drain sumps, water to wastewater Treatment
(6) Pulled 7 concrete core samples including, Duplicate
(7) Cleaned drain Sumps

HDR Site Coordinator

Drum Storage Facility Closure Certification

Daily Summary Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR Project No. 02173-030-107

Date March 25, 1988

Summary of Progress to Date

Sample Type	Completed This Date	Completed To Date	Percent Complete	Projected Completion Date
Concrete Core	7	7	80%	3/2, '88
Wipe	—	—	—	3/26/88
Wooden Pallet	—	—	—	—
Other	—	—	—	—
TOTAL	7	7	80%	3/26/88

Sample Locations/Type Completed this Date

Were determined by HDR site coordinator on basis of worse case scenario, oily Areas, stains etc. All sample locations and GM drum storage areas are measured and located to ± 2ft from inside berm edge and are on seperate shee

Sample Locations Scheduled for 3/26/88

One concrete core sample, wipe samples and QA/QC sample.

HDR Site Coordinator

Drum Storage Facility Closure Certification

Daily Summary Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR

HDR Project No. 02173-030-107

Date March 25, 1988

Key Actions/Information Required

Requested from Midwest Mech. an MSDS for cleaning solution - did not recieve

Scope/Concept Change or Modification

Upon review of pre-sampling meeting notes, Jeff W. requested that two concrete cores be taken at boring locations DS-1-2 & DS-5-1 from the January effort showing Pb elevated le In fulfilling this request, all coring areas had already been sited, and to pickup one Jan. boring area would create another core sample, this will be brought to Jeff's attention and documented in field log.

Meeting Documentation

Time	Participants	Subject
1015	KDHE, GM, HDR	General Overview Project

Problem Identification and Corrective Action Taken

There are a limited (≈6) areas where paint had spilled on concrete, scraping and spraying yielded limited success, if these areas should be removed sand blasting would be most cost effective

Copies to:

CPC Fairfax - Bob Baird
HDR Project Manager - Jeff Williamson
HDR Site Coordinator (Original)

HDR Site Coordinator

Drum Storage Facility Closure Certification

Photographic Record

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR

HDR Project No. 02173-030-107

Roll No. 1
ASA 400 No. Exposures 36
Film Type Kodak color print

Photographic Record

Photo No.	Date	Time	Location	Orientation	Description
DS-1-1	3-25-88	0920	GM Drum Storage Pad	NW	Initial area sweep
DS-1-2	"	"	"	NW	General site overview
DS-1-3	"	"	"	NW	Equipment & Initial area sweep
DS-1-4	"	"	"		Emul. sola. label
DS-1-5	"	0945	"		Initial Area Sweep
DS-1-6	"	"	"		Application of Emulsifier
DS-1-7	"	1015	"		Thinner & Paint Emptied to Baghouse storage cleaning area
DS-1-8	"	"	"		scrub down of above storage
DS-1-9	"	"			cleaned Thinner Empties-Baghouse Area
DS-1-10	"	1240	"		Scrub down of Emulsifier sol.
DS-1-11	"	"	"		Paint Spill areas
DS-1-12	"	"	"		"
DS-1-13	"	1340	"	SW	clay Boring #1 High lead area
DS-1-14		1600	"	S.E.	Extremely trashy area in S.E. corner - paper etc.
DS-1-15		1610	"	S-S.E.	Scraping up paper etc.

*DS - Roll No. - Frame No.

HDR Site Coordinator

Drum Storage Facility Closure Certification

Daily Summary Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR

HDR Project No. 02173-030-107

Date March 26, 1988

Site Personnel

No.	Company	Craft
2	HDR	Samplers

Total On-Site Personnel 2

Weather Conditions

Temperature:

Max. 60's Min. 40's

Phenomena:

Clear ✓ Other windy !!!

Precipitation:

None

Summary of Activities

* Pulled Remaining concrete core samples
* Obtained wipe samples 1 blank & 1 duplicate
* QA/QC Equip rinsate on core bit
* Measured storage area and sampling wipes & core locations to ± 2"
* Langston picked up samples at 11:00 am

HDR Site Coordinator

Drum Storage Facility Closure Certification

Daily Summary Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR Project No. 02173-030-107

Date March 26, 1988

Summary of Progress to Date

Sample Type	Completed This Date	Completed To Date	Percent Complete	Projected Completion Date
Concrete Core	1	8	100	3-26-88
Wipe	7	7	100	3-26-88
Wooden Pallet	—	—	—	—
Other	—	—	—	—
TOTAL	8	15	100	3-26-88

Sample Locations/Type Completed this Date

All wipes/corings and QA/QC completed

Sample Locations Scheduled for

N/A

Bill Lyle
HDR Site Coordinator

Drum Storage Facility Closure Certification

Daily Summary Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR

HDR Project No. 02173-030-107

Date March 26, 1988

Key Actions/Information Required

No MSDS on emulsifying solution

Scope/Concept Change or Modification

N/A

Meeting Documentation

Time	Participants	Subject
	N/A	

Problem Identification and Corrective Action Taken

N/A

Copies to:

CPC Fairfax - Bob Baird
HDR Project Manager - Jeff Williamson
HDR Site Coordinator (Original)

HDR Site Coordinator

Drum Storage Facility
Closure Certification

Photographic Record

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

HDR Engineering, Inc.

HDR

HDR Project No. 02173-030-107

Roll No. 1
ASA 400 **No. Exposures** 36
Film Type Kodak Color Print

Photographic Record

Photo No.	Date	Time	Location	Orientation	Description
DS-1-16	3-26-88	0810	GM Drum Storage	NW	Concrete coring
DS-1-17	"	0815	"	W	cleaned area, overview
DS-1-18	"	"	"	W	" "
DS-1-19	"	0820	"	NW	Concrete coring
DS-1-20	"	1015	"	—	Lavender Paint - Wipe sample
DS-1-21	"	1020	"	S-SE	Coring # 1523
DS-1-22	"	1025	"	—	Coring # 1527
DS-1-23	"	1030	"	NE Corner Shack	Stain area in shack

*DS - Roll No. - Frame No.

HDR Site Coordinator

APPENDIX B - ANALYTICAL METHODS

APPENDIX B

SAMPLING AND ANALYTICAL METHODS

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

Matrix	Sampling Method	Analysis	Analytical Method	Detection Limits	Holding Time
SOIL	EPA-600/4-84-076 Section 2.3.2, Method II-4 Modified	Volatiles	SW846 Method 5030/8240	*	14 days
		Inorganics (Cd, Cr, Ag, Ba)	SW846 Method 3050/6010	**	6 months
		Inorganic (As)	SW846 Method 7060 or 7061	1 mg/Kg	6 months
		Inorganic (Hg)	SW846 Method 7471	0.2 mg/Kg	28 days
		Inorganic (Pb)	SW846 Method 7421	0.5 mg/Kg	6 months
		Inorganic (Se)	SW846 Method 7740 or 7741	0.5 mg/Kg	6 months
WATER (Blank Samples)	EPA-600/4-84-076 Section 3.4.3, Method III-9	Volatiles	SW846 Method 5030/8240	*	14 days
		Inorganics (Cd, Cr, Ag, Ba)	SW846 Method 3050/6010	***	6 months
		Inorganic (As)	SW846 Method 7060 or 7061	10 ug/L	6 months
		Inorganic (Hg)	SW846 Method 7471	0.2 ug/L	28 days
		Inorganic (Pb)	SW846 Method 7421	5 ug/L	6 months
		Inorganic (Se)	SW846 Method 7740 or 7741	5 ug/L	6 months

* The Volatile Compounds are the same as those described in SW846 Test Method 8240, Table 1 and typically have a detection limit of 5 ppb.
** Ba 20 mg/Kg, Cd 0.5 mg/Kg, Cr 1 mg/Kg, Ag 1 mg/Kg.
*** Ba 200 ug/L, Cd 5 ug/L, Cr 10 ug/L, Ag 10 ug/L.

APPENDIX B

SAMPLING AND ANALYTICAL METHODS

Drum Storage Facility
Closure Certification Report

Fairfax I Plant
Chevrolet-Pontiac-Canada Group
General Motors Corporation
Kansas City, Kansas

Matrix	Sampling Method	Analysis	Analytical Method	Detection Limits	Holding Time
CONCRETE	Wipe Sample	Inorganics (Cd, Cr, Ag, Ba)	SW846 Method 3050/6010	*	6 months
		Inorganic (As)	SW846 Method 7060 or 7061	1 mg/Kg	6 months
		Inorganic (Hg)	SW846 Method 7471	0.2 mg/Kg	28 days
		Inorganic (Pb)	SW846 Method 7421	0.5 mg/Kg	6 months
		Inorganic (Se)	SW846 Method 7740 or 7741	0.5 mg/Kg	6 months
CONCRETE	Coring	EP Toxicity	SW 846 Method 1310	Method	Method
		Inorganics (Cd, Cr, Ag, Ba)	SW846 Method 3050/6010	*	6 months
		Inorganic (As)	SW846 Method 7060 or 7061	1 mg/Kg	6 months
		Inorganic (Hg)	SW846 Method 7471	0.2 mg/Kg	28 days
		Inorganic (Pb)	SW846 Method 7421	0.5 mg/Kg	6 months
		Inorganic (Se)	SW846 Method 7740 or 7741	0.5 mg/Kg	6 months

* Ba 20 mg/Kg, Cd 0.5 mg/Kg, Cr 1 mg/Kg, Ag 1 mg/Kg.

APPENDIX C - LABORATORY ANALYSES

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-1-1 (88-1437)	Arsenic	3.21 mg/kg	1/30/88
	Barium	89 mg/kg	2/1/88
	Cadmium	1.1 mg/kg	2/1/88
	Chromium	6.8 mg/kg	2/1/88
	Lead	9.2 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/29/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/26/88

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-1-2 (88-1438)	Arsenic	2.66 mg/kg	1/30/88
	Barium	120 mg/kg	2/1/88
	Cadmium	1.4 mg/kg	2/1/88
	Chromium	8.3 mg/kg	2/1/88
	Lead	29 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	0.2 mg/kg	1/29/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	2.8 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/26/88

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

LANGSTON LABORATORIES, INC.
Research • Testing • Problem Solving
2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 4, 1988

LLI NO.: 88-5054 Revised

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-2-1 (88-1439)	Arsenic	2.30 mg/kg	1/30/88
	Barium	103 mg/kg	2/1/88
	Cadmium	0.2 mg/kg	2/1/88
	Chromium	2.3 mg/kg	2/1/88
	Lead	10.0 mg/kg	2/4/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/29/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/4/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/26/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Kerschen

Alan Kerschen
Vice President

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 4, 1988

LLI NO.: 88-5054 Revised

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-2-2 (88-1440)	Arsenic	2.85 mg/kg	1/30/88
	Barium	96 mg/kg	2/1/88
	Cadmium	1.2 mg/kg	2/1/88
	Chromium	7.2 mg/kg	2/1/88
	Lead	8.0 mg/kg	2/4/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/29/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/4/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/26/88

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

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CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-3-1 (88-1441)	Arsenic	0.37 mg/kg	1/30/88
	Barium	99 mg/kg	2/1/88
	Cadmium	1.2 mg/kg	2/1/88
	Chromium	7.4 mg/kg	2/1/88
	Lead	48 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/29/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/26/88

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

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CLIENT: General Motors Corporation
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Kansas City, KS 66115

ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-3-2 (88-1442)	Arsenic	1.3 mg/kg	1/30/88
	Barium	99 mg/kg	2/1/88
	Cadmium	1.3 mg/kg	2/1/88
	Chromium	8.0 mg/kg	2/1/88
	Lead	17 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	0.4 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED:

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RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-4-1 (88-1443)	Arsenic	1.07 mg/kg	1/30/88
	Barium	83 mg/kg	2/1/88
	Cadmium	1.3 mg/kg	2/1/88
	Chromium	6.9 mg/kg	2/1/88
	Lead	17 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

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CLIENT: General Motors Corporation
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ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-4-2 (88-1444)	Arsenic	1.24 mg/kg	1/30/88
	Barium	73 mg/kg	2/1/88
	Cadmium	0.97 mg/kg	2/1/88
	Chromium	5.8 mg/kg	2/1/88
	Lead	9.5 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	0.3 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen

Alan Kerschen
Vice President

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Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-5-1 (88-1445)	Arsenic	2.78 mg/kg	1/30/88
	Barium	110 mg/kg	2/1/88
	Cadmium	1.6 mg/kg	2/1/88
	Chromium	7.2 mg/kg	2/1/88
	Lead	11 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	0.89 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED:

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LABORATORY REPORT

CLIENT: General Motors Corporation
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ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-5-2 (88-1446)	Arsenic	2.04 mg/kg	1/30/88
	Barium	110 mg/kg	2/1/88
	Cadmium	1.6 mg/kg	2/1/88
	Chromium	8.6 mg/kg	2/1/88
	Lead	11 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	0.3 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED:

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115

ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-6-1 (88-1447)	Arsenic	2.53 mg/kg	1/30/88
	Barium	86 mg/kg	2/1/88
	Cadmium	1.3 mg/kg	2/1/88
	Chromium	6.7 mg/kg	2/1/88
	Lead	8.0 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: February 1, 1988

LLI NO.: 88-5054

SAMPLE DESCRIPTION: Exterior Sample Collected 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
DS-6-2 (88-1448)	Arsenic	1.98 mg/kg	1/30/88
	Barium	92 mg/kg	2/1/88
	Cadmium	1.3 mg/kg	2/1/88
	Chromium	7.1 mg/kg	2/1/88
	Lead	11 mg/kg	2/1/88
	Mercury	< 0.1 mg/kg	1/29/88
	Selenium	< 0.2 mg/kg	1/27/88
	Silver	< 0.2 mg/kg	1/28/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	1/30/88
	Barium	< 5.0 mg/liter	2/1/88
	Cadmium	< 0.05 mg/liter	2/1/88
	Chromium	< 0.25 mg/liter	2/1/88
	Lead	< 0.25 mg/liter	2/1/88
	Mercury	< 0.01 mg/liter	1/29/88
	Selenium	< 0.05 mg/liter	1/27/88
	Silver	< 0.25 mg/liter	1/28/88

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 25, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-1-1 (88-1437)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-1-1 (88-1437)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 25, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-1-2 (88-1438)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-1-2 (88-1438)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

LANGSTON LABORATORIES, INC.

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2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 25, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-2-1 (88-1439)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-2-1 (88-1439)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 25, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-2-2 (88-1440)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-2-2 (88-1440)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 27, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-3-1 (88-1441)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-3-1 (88-1441)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-3-2 (88-1442)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-3-2 (88-1442)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-4-1 (88-1443)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED:
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-4-1 (88-1443)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

LANGSTON LABORATORIES, INC.
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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-4-2 (88-1444)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-4-2 (88-1444)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7809

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-5-1 (88-1445)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-5-1 (88-1445)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

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Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-5-2 (88-1446)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-5-2 (88-1446)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-6-1 (88-1447)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-6-1 (88-1447)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
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ATTN: Pete Zanoni

RECEIVED: January 14, 1988 (5:00 pm)
COMPLETED: January 28, 1988

LLI NO.: 88-5054

DATE ANALYZED: January 26, 1988

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-6-2 (88-1448)	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	< 500 µg/kg
	Acetone	< 500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	Trichlorofluoromethane	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	< 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 500 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg

cc: Jeff Williamson
HDR International

APPROVED:

Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Exterior Sample Collected on 1/13/88 by Doug Taggart and Randy Grachek of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
DS-6-2 (88-1448)	Vinyl Acetate	< 500 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 500 µg/kg
	2-Hexanone	< 500 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	< 500 µg/kg
	2-Chloroethylvinylether	< 500 µg/kg

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LABORATORY REPORT

CLIENT: General Motors Corporation
100 Kindelberger Road
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: August 20, 1987 (11:00 am)
COMPLETED: September 21, 1987

LLI NO.: 87-3382
CONTRACT: FXB00054

SAMPLE DESCRIPTION: Soil Sample Collected August 19, 1987 by Al Erickson of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
S-8-1045 5'	Arsenic	1.4 mg/kg
	Barium	88 mg/kg
	Cadmium	1.0 mg/kg
	Chromium	5.8 mg/kg
	Lead	7.4 mg/kg
	Mercury	< 0.1 mg/kg
	Selenium	0.71 mg/kg
	Silver	0.2 mg/kg

cc: Jeff Williamson
HDR International

APPROVED: Alan Kerschen

Alan Kerschen
Vice President

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1520 (DSC-1-1)	Arsenic	2.1 mg/kg	4/14/88
	Barium	32.1 mg/kg	4/26/88
	Cadmium	0.48 mg/kg	4/26/88
	Chromium	5.74 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 1.0 mg/kg	4/11/88
	Selenium	< 1.0 mg/kg	4/14/88
	Silver	< 0.2 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED:

Judith A. Russell
Laboratory Manager

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CLIENT: General Motors Corporation
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ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1521 (DSC-3-1)	Arsenic	3.0 mg/kg	4/14/88
	Barium	33.6 mg/kg	4/26/88
	Cadmium	0.55 mg/kg	4/26/88
	Chromium	6.6 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 1.0 mg/kg	4/11/88
	Selenium	< 1.0 mg/kg	4/14/88
	Silver	1.30 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Laboratory Manager

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Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1522 (DSC-4-1)	Arsenic	< 0.2 mg/kg	4/14/88
	Barium	34.2 mg/kg	4/26/88
	Cadmium	0.58 mg/kg	4/26/88
	Chromium	5.81 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 1.0 mg/kg	4/11/88
	Selenium	< 1.0 mg/kg	4/14/88
	Silver	1.23 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Laboratory Manager

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COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1523 (DSC-5-1)	Arsenic	3.4 mg/kg	4/14/88
	Barium	41.2 mg/kg	4/26/88
	Cadmium	0.67 mg/kg	4/26/88
	Chromium	7.7 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 1.0 mg/kg	4/11/88
	Selenium	< 1.0 mg/kg	4/14/88
	Silver	1.54 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

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ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1524 (DSC-2-1)	Arsenic	4.1 mg/kg	4/14/88
	Barium	48.5 mg/kg	4/26/88
	Cadmium	0.75 mg/kg	4/26/88
	Chromium	7.7 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 1.0 mg/kg	4/11/88
	Selenium	< 1.0 mg/kg	4/14/88
	Silver	1.61 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Laboratory Manager

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1525 (DSC-2-2)	Arsenic	3.8 mg/kg	4/14/88
	Barium	41.7 mg/kg	4/26/88
	Cadmium	0.65 mg/kg	4/26/88
	Chromium	6.7 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 0.2 mg/kg	4/11/88
	Selenium	< 0.2 mg/kg	4/14/88
	Silver	1.74 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Judith A. Russell
Laboratory Manager

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3201 Fairfax Trafficway
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ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/25/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1526 (DSC-6-1)	Arsenic	1.0 mg/kg	4/14/88
	Barium	31.0 mg/kg	4/26/88
	Cadmium	0.54 mg/kg	4/26/88
	Chromium	5.9 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 0.2 mg/kg	4/11/88
	Selenium	< 0.2 mg/kg	4/14/88
	Silver	1.17 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

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ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988
LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1527 (DSC-7-1)	Arsenic	< 0.2 mg/kg	4/14/88
	Barium	24.3 mg/kg	4/26/88
	Cadmium	0.36 mg/kg	4/26/88
	Chromium	5.8 mg/kg	4/26/88
	Lead	< 2.5 mg/kg	4/26/88
	Mercury	< 0.2 mg/kg	4/11/88
	Selenium	< 0.2 mg/kg	4/14/88
	Silver	1.56 mg/kg	4/21/88
	EP Toxicity		
	Arsenic	< 0.25 mg/liter	4/14/88
	Barium	< 5.0 mg/liter	4/26/88
	Cadmium	< 0.05 mg/liter	4/26/88
	Chromium	< 0.25 mg/liter	4/26/88
	Lead	< 0.25 mg/liter	4/26/88
	Mercury	< 0.01 mg/liter	4/11/88
	Selenium	< 0.05 mg/liter	4/14/88
	Silver	< 0.25 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Judith A. Russell
Laboratory Manager

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3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1528 (DSW-1-1) *	Arsenic	< 0.2 mg	4/14/88
	Barium	5.5 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	5.6 mg	4/26/88
	Lead	32.8 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	< 0.2 mg	4/21/88

* 100 sq. cm. area wiped.

cc: Jeff Williamson
HDR International

APPROVED:

Judith A. Russell
Laboratory Manager

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3201 Fairfax Trafficway
Kansas City, KS 66115

ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1529 (DSW-2-1) *	Arsenic	< 0.2 mg	4/14/88
	Barium	< 2.0 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	27 mg	4/26/88
	Lead	74 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	< 0.2 mg	4/21/88

* 100 sq. cm. area wiped.

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Laboratory Manager

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COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1530 (DSW-2-2) *	Arsenic	< 0.2 mg	4/14/88
	Barium	< 2.0 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	20 mg	4/26/88
	Lead	54.6 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	< 0.2 mg	4/21/88

* 100 sq. cm. area wiped.

cc: Jeff Williamson
HDR International

APPROVED:

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LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1531 (DSW-3-1) *	Arsenic	< 0.2 mg	4/14/88
	Barium	< 2.0 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	52 mg	4/26/88
	Lead	123 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	< 0.2 mg	4/21/88

* 100 sq. cm. area wiped.

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
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ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1532 (DSW-4-1) *	Arsenic	< 0.2 mg	4/14/88
	Barium	< 2.0 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	< 2.0 mg	4/26/88
	Lead	61 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	0.3 mg	4/21/88

* 100 sq. cm. area wiped.

cc: Jeff Williamson
HDR International

APPROVED:

Judith A. Russell
Laboratory Manager

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1533 (DSW-5-1)	Arsenic	< 0.2 mg	4/14/88
	Barium	< 2.0 mg	4/26/88
	Cadmium	0.84 mg	4/26/88
	Chromium	40 mg	4/26/88
	Lead	39 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	0.3 mg	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Judith A. Russell
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SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1534 (DSW-6-1)	Arsenic	< 0.2 mg	4/14/88
	Barium	5.8 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	11 mg	4/26/88
	Lead	82 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	< 0.2 mg	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Laboratory Manager

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COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1536 (DB-2)	Arsenic	< 0.001 mg/liter	4/14/88
	Barium	< 0.010 mg/liter	4/26/88
	Cadmium	0.002 mg/liter	4/26/88
	Chromium	< 0.010 mg/liter	4/26/88
	Lead	< 0.010 mg/liter	4/26/88
	Mercury	< 0.001 mg/liter	4/11/88
	Selenium	< 0.001 mg/liter	4/14/88
	Silver	< 0.001 mg/liter	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Judith A. Russell
Laboratory Manager

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LABORATORY REPORT

CLIENT: General Motors Corporation
3201 Fairfax Trafficway
Kansas City, KS 66115
ATTN: Pete Zanoni

RECEIVED: March 26, 1988 (12:00 Noon)
COMPLETED: April 27, 1988

LLI NO.: 88-5709

SAMPLE DESCRIPTION: Exterior Sample Collected 3/26/88 by Keith Potts and Bill Sigler of HDR

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS	DATE ANALYZED
1535 (DB-3)	Arsenic	< 0.2 mg	4/14/88
	Barium	< 2.0 mg	4/26/88
	Cadmium	< 0.2 mg	4/26/88
	Chromium	< 2.0 mg	4/26/88
	Lead	< 2.5 mg	4/26/88
	Mercury	< 0.2 mg	4/11/88
	Selenium	< 0.2 mg	4/14/88
	Silver	< 0.2 mg	4/21/88

cc: Jeff Williamson
HDR International

APPROVED: Judith A. Russell
Laboratory Manager

APPENDIX D - CHAIN OF CUSTODY RECORDS

A Centerra Company
Omaha, NE 68114-4049
402 399-1000

Chain of Custody Record

Project No. 02173-027-034

Project Name GM Fairfax I
Environmental Assessment Phase II

Parameters: ✓ ✓ ✓ ✓ VOLATILES · PRIORITY POLLUTANTS: HEAVY METALS · EPT · TOTAL

☐ Hazardous or ☑ Environmental

☐ Low ☐ Med ☐ High

Samplers: (Signature) Doug Taggart / Randy Gracher

(Printed) DOUG TAGGART / RANDY GRACHER

Remarks: per GM FX

	Field Sample Number	Date	Time	Comp.	GRAB	Station Location	No. of Containers	VOLATILES	PRIORITY POLLUTANTS: HEAVY METALS	EPT	TOTAL	Remarks
01												
02												
03												
04												
05												
06												
07	DS-1-1	1/13/88	1439	✓		DS-1	2		✓	✓	✓	GM88-1437
08	DS-1-2	"	1450	✓		DS-1	2		✓	✓	✓	GM88-1438
09	DS-2-1	"	1623	✓		DS-2	2		✓	✓	✓	GM88-1439
10	DS-2-2	"	1630	✓		DS-2	2		✓	✓	✓	GM88-1440
11	DS-3-1	"	1458	✓		DS-3	2		✓	✓	✓	GM88-1441
12	DS-3-2	"	1503	✓		DS-3	2		✓	✓	✓	GM88-1442

SAMPLES NOT APPLICABLE TO DRUM STORAGE FACILITY CLOSURE

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Relinquished By: (Signature)	Date	Time	Received By: (Signature)
(Printed)			(Printed)	(Printed)			(Printed)
Relinquished By: (Signature)	Date	Time	Received for Laboratory By: (Signature)	Date	Time	Remarks	
(Printed)			(Printed)				

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

402 399-1000

Project No. 02173-027-03

Project Name GM Fairfax I Environmental Assessment Phase II

Parameters: PRIORITY POLLUTANTS - HEAVY METALS; TOTAL

☐ Hazardous or ☒ Environmental

☐ Low ☐ Med ☐ High

Samplers (Signature) Doug Taggart, Randy Grachek

(Printed) Doug Taggart, Randy Grachek

	Field Sample Number	Date / Time	Comp.	GRAB	Station Location	No. of Containers	VOLATILES	[redacted]	EPT	Remarks
13	DS-4-1	1/13/88 1610	✓		DS-4	2	✓	✓	✓	GM88-1443
14	DS-4-2	" 1614	✓		DS-4	2	✓	✓	✓	GM88-1444
15	DS-5-1	" 1557	✓		DS-5	2	✓	✓	✓	GM88-1445
16	DS-5-2	" 1600	✓		DS-5	2	✓	✓	✓	GM88-1446
17	DS-6-1	" 1510	✓		DS-6	2	✓	✓	✓	GM88-1447
18	DS-6-2	" 1515	✓		DS-6	2	✓	✓	✓	GM88-1448
19										
20										
21										
22										
23										
24										

SAMPLES NOT APPLICABLE TO DRUM STORAGE FACILITY CLOSURE

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Relinquished By: (Signature)	Date	Time	Received By: (Signature)
(Printed)	1-14-88	1115	(Printed)	(Printed)			(Printed)

Relinquished By: (Signature)	Date	Time	Received for Laboratory By: (Signature)	Date	Time	Remarks
(Printed)			(Printed)	1/14		

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

HDR Infrastructure
A Centerra Company
8404 Indian Hills Drive
Omaha, NE 68114-4049
402 399-1000

Chain of Custody Record

Project No. 02173-030
Project Name: GM Fairfax I Drum Storage Facility Closure
Parameters
☐ Hazardous or ☒ Environmental
☐ Low ☐ Med ☐ High

Samplers: (Signature) Potts / Bill Sigler (Printed) Potts / Bill Sigler

Field Sample Number	Date	Time	Comp.	GRAB	Station Location	No. of Containers	TOTAL E.P. TOX. METALS	E.P. TOX. EXTRACTION ANALYSIS	Remarks
1520	3/25/88	1535		X	DSC-1	1	✓	✓	DSC-1-1 HDR Sample #
1521	3/25	1545		X	DSC-3	1	✓	✓	DSC-3-1 "
1522	3/25	1555		X	DSC-4	1	✓	✓	DSC-4-1 "
1523	3/25	1745		X	DSC-5	1	✓	✓	DSC-5-1 "
1524	3/25	1755		X	DSC-2	1	✓	✓	DSC-2-1 "
1525	3/25	1805		X	D	1	✓	✓	DSC-2-2 "
1526	3/25	1815		X	DSC-6	1	✓	✓	DSC-6-1 "
1527	3/26	0905		X	DSC-7	1	✓	✓	DSC-7-1 "
1528	3/26	0920	X		~~DSC~~ DSW-1	1	✓		100 sq. cm. area wiped DSW-1-1
1529	3/26	0924	X		DSW-2	1	✓		" DSW-2-1
1530	3/26	0927	X			1	✓		" DSW-2-2
1531	3/26	0930	X		DSW-3	1	✓		" DSW-3-1

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Relinquished By: (Signature)	Date	Time	Received By: (Signature)
Bill Sigler	3-26-88	1103	Leslie J. Clevenger				
(Printed) Bill Sigler			(Printed) Leslie J. Clevenger	(Printed)			(Printed)
Relinquished By: (Signature)	Date	Time	Received for Laboratory By: (Signature)	Date	Time	Remarks	
(Printed)			(Printed)				

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

HDR Infrastructure
A Centerra Company
8404 Indian Hills Drive
Omaha, NE 68114-4049
402 399-1000

Chain of Custody Record

Project No. 02173-030

Project Name: GM Fairfax I Drum Storage Facility Closure

Parameters

☐ Hazardous or ☒ Environmental

☐ Low ☐ Med ☐ High

Samplers: (Signature) Potts / Bill Sigler

(Printed) Potts / Bill Sigler

Field Sample Number	Date	Time	Comp.	GRAB	Station Location	No. of Containers	EP TOX. TOTAL METALS	Remarks
1532	3/26/88	0946	X		DSW-4	1	✓	DSW-4-1 100 Sq. C.M. area WIPED
1533	3/26	0950	X		DSW-5	1	✓	DSW-5-1 HDR Sample #
1534	3/26	0955	X		DSW-6	1	✓	DSW-6-1 "
1535	3/26	0942			DB-3	1	✓	DB-3 "
1536	3/26	1000			Core Bit Equip. Rinsate	1	✓	DB-2 "

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Relinquished By: (Signature)	Date	Time	Received By: (Signature)
Bill Sigler	3-26-88	1103	Leslie J. Clorange				
(Printed) Bill Sigler			(Printed) Leslie J. Clorange	(Printed)			(Printed)

Relinquished By: (Signature)	Date	Time	Received for Laboratory By: (Signature)	Date	Time	Remarks
(Printed)			(Printed)			

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

APPENDIX E - EMULSIFIER MSDS

ACTIV 600	H.D. Cleaner/Degreaser	1400	J. Hussmann
Bullen Trade Name	Type Product	Code	Prepared by

• Prepared by Bullen Chemical Co., Midwest, Inc. • 1415 W. 37th St. Chicago, IL 60609 • Emergency Phone 312-247-2000

MATERIAL SAFETY DATA SHEET

(Prepared According to 29 CFR 1910. 1200)

Date Prepared 7/01/86

SECTION 1 - PRODUCT IDENTIFICATION

Distributor Name	Emergency Telephone No.
CLEAN-TECH SYSTEMS, INC.	
Address 305 CHEROKEE	
Trade Name SPONTANEOUS EMULSIFIER	**Product Type** H.D. Cleaner/Degreaser
Chemical Family	**Formula** Compounded Product

SECTION 2 - HAZARDOUS INGREDIENTS

CHEMICAL NAME/COMMON NAME	CAS NO.	PERCENT (optional)	TLV (Source)
Sodium Hydroxide	1310-73-2	< 8%	2mg/M^3(ACGIH)
Silicic Acid - Sodium Salt	1344-09-8	< 5%	2mg/M^3 *
* As NaO			

SECTION 3 - PHYSICAL DATA

Boiling Point (°F)	212° F	**Specific Gravity** (H_2O = 1.0)	1.076 ±0.005	pH	13.2 ±0.5
Vapor Pressure (mmHg)	Not Determined	**Vapor Density** (Air = 1)	Not Determined		

Solubility in Water	[V] Complete	[ ] Insoluble	[ ] Emulsifiable (or dispersible	[ ] Slight (or partial)
Evaporation Rate (vs H_2O)	[ ] Faster	[ ] Slower	[X] About the Same	

Appearance and Odor
Clear colorless liquid with no distinct odor.

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

Flash Point (T.C.C.)	[X] None to Boiling	Flammable Limits	Upper N/A	Lower

Extinguishing Media
Water Fog; Dry Chemical; Carbon Dioxide; Foam

Special Fire Fighting Procedures Firefighters should wear a self-contained breathing apparatus with full protective equipment.

Unusual Fire and Explosion Hazards
None

SECTION 5 - REACTIVE DATA

Stability Stable **Incompatibility** Strong Acids, Strong Oxidizers, Anionic Surfactants

Hazardous Decomposition Products
Burning can produce Carbon Monoxide, Carbon Dioxide

SECTION 6 - HEALTH HAZARDS

Threshold Limit Value - Product (See Section 2 for Ingredient TLV) ☒ None Established ☐ Not Applicable Source

Primary Routes of Exposure ☐ Eye ☒ Skin ☐ Oral ☐ Inhalation ☐ Other

Signs and Symptoms of Over-exposure (Acute) Corrosive material. Will cause burns of skin and eyes on contact. Corneal damage likely if contact with eyes is prolonged. Ingestion: Will cause burns of mucous membranes and internal damage, possibly death. Inhalation of mists and/or vapors can cause damage to upper respiratory tract and lung tissue.

Signs and Symptoms of Over-exposure (Chronic)

None Currently Known

Medical Conditions Aggravated by Over-exposure

An Existing Dermatitis

Carcinogen or Suspect Carcinogen Ingredients: ☐ NTP ☐ IARC ☐ OSHA ☒ None

SECTION 7 - EMERGENCY AND FIRST AID PROCEDURES

Eyes Flush with water for at least 15 minutes and call a physician.

Skin Wash with large amounts of soap and water. If irritation persists, consult a physician.

Ingestion Do not induce vomiting. Dilute by drinking water. Call a physician immediately.

Inhalation Remove to fresh air. If breathing has stopped artificial respiration should be started. Oxygen may be administered, if available. Call a physician. Never give anything by mouth to an unconscious person.

SECTION 8 - SPECIAL PROTECTION INFORMATION

Respiratory Protection None required under normal use conditions.

Ventilation Requirements N/A ☐ Local Exhaust ☐ Mechanical ☐ Other

Protective Gloves Rubber/PVC Eye Protection Safety Glasses/Goggles

Other Protective Clothing

Normal work clothing covering arms and legs. Safety apron.

SECTION 9 - SPILL OR LEAK PROCEDURES

Steps to be Taken if Released or Spilled Stop spill at source. Dilute spill with large amounts of water and neutralize with dilute acid. Mop, shovel, pump and/or absorb with inert material and place in sound containers. Rinse remaining residue with excess water.

Waste Disposal Methods Dispose of in an approved waste facility according to Federal, State and local regulations. Neutralized material may be drained to sewer.

SECTION 10 - STORAGE AND HANDLING INFORMATION

Precautions to be Taken in Handling and Storage

WARNING: Corrosive liquid. Handle all containers carefully.